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PATENT  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of: )  
)  
U. ORTH et al. )  
) Group Art Unit: 3732  
Application No.: 10/804,089 )  
) Examiner: J. S. WERNER  
Filed: March 19, 2004 )  
)  
For: DATA BASE, TOOTH MODEL, AND )  
RESTORATIVE ITEM CONSTRUCTED FROM )  
DIGITALIZED IMAGES OF REAL TEETH )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**APPELLANT'S REPLY BRIEF UNDER 37 C.F.R. § 41.41**

This Reply Brief is in furtherance of the Examiner's Answer dated December 26, 2007.

**1. Argument**

**The rejection of independent claim 1, and claims 2-18 and 26, which depend therefrom, is improper and should be reversed.**

In the Examiner's Answer, the Examiner maintains the rejection of the appealed claims and specifically indicates, in Paragraph (10) Response to Argument, that:

"Appellant has admitted that the Farag reference discloses the storage of data and the illustration of digitized images of teeth (page 6, Appeal Brief). However, Appellant asserts that for Farag, "the storage of a 3-D image in association with patient information is merely of an administrative nature and leads to an electronic file." Examiner does not quite understand Appellant's argument as it relates to the language of claim 1 insofar as said claim is explicitly directed to a database for the storage of data -- not to the way that

such data is stored, retrieved and/or processed. Examiner notes that any electronic file -- whether for administrative purposes or not -- is still considered relevant data. In this case, Farag discloses the use of 3-D images of a patient's oral cavity, wherein said 3-D images represent the data that is stored in a database of patient records (paragraph 0038; Farag)....

Appellant then remarks that "for the present invention, the specific features of the teeth are stored supplementary to the image. This information is in addition to the pure shape of the tooth" (page 7, Appeal Brief). However, Examiner points out that this disclosure was never interpreted as part of the scope of claim 1. Instead, as interpreted by Examiner based on the claim language and the accompanying disclosure, the dental data stored in the database of claim 1 "illustrate real teeth as images in digitized form" (represented by the 3-D images of Farag), wherein "said digitized form also involves one of universally applicable dentition-specific features, tooth-specific features, and structural properties" (also represented by the 3-D images of Farag). Although Appellant admits that the 3-D image stored in the database of Farag does show specific features, "such features are not identified separately" (page 7, Appeal Brief). Again, Examiner contends that such a limitation is not claimed.

Appellant further argues that "Farag does not disclose a database with identified tooth-specific structures, but only discloses storage of 3-D images" (page 7, Appeal Brief). Examiner points out that the claimed tooth-specific and dentition-specific features are described in Applicant's specification (pages 16-17) as structural features associated with each individual tooth and/or dentition. From this description, it is Examiner's understanding that a 3-D image (i.e. dentition 123 in Figure 8 of Farag) shows structural features such as tooth family-specific characteristics (i.e. the shape of each cuspid, molar, incisor, etc.). Examiner additionally remarks that "identified" tooth-specific structures were never claimed as representative of the data stored in the database. As understood by Examiner and pointed out above, the dental data set forth in claim 1 is represented by images of teeth in digitized form. Appellant claims that said digitized form involves one of dentition-specific features, tooth-specific features, and structural properties. However, the claim does not require the data to include "identified tooth-specific structures."

Instead, Examiner notes that any number of tooth-specific features can be ascertained directly from the 3-D image of Farag. For example, Appellant claims that said features include at least one sex-specific, tooth family-specific, biography-specific, and person-specific characteristics. It is the Examiner's position that the 3-D image of the patient's oral cavity stored in the database of Farag includes these characteristics -- for example, an examination of said image would yield tooth family-specific characteristics (such as the shape and location of each molar, cuspid, incisor, etc.). Furthermore, paragraph 0038 of Farag teaches that the aforementioned 3-D image is stored in association with patient information (i.e. said image along with the name of the patient), wherein this combination of stored data is representative of the claimed "person-specific characteristics...."

Appellant respectfully disagrees with the Examiner's Response to Arguments for the reasons presented below.

Specifically, at the outset, the Examiner indicates that Appellant's argument that "the storage of a 3-D image in association with patient information is merely of an administrative nature and leads to an electronic file," is unclear. In this regard, Appellant respectfully notes that for the present invention, the specific features of the teeth are stored supplementary to the image. This information is in addition to the pure shape of the tooth. For the present invention, the dental data information of the real teeth as images in digitized form goes beyond any administrative information (as in *Farag*), in that the information is defined in such a way that it is possible to use this data for construction of a "new" tooth, as discussed below.

Secondly, the Examiner indicates that Appellant's argument that the 3-D image stored in the database of Farag does show specific features, "such features are not identified separately" (page 7, Appeal Brief) is not claimed. Appellant respectfully notes that based on the discussion below, the objected to language by the Examiner provides a basis for Appellant's discussion of the "administrative nature" of *Farag* patient information.

The Examiner further rebuts Appellant's argument that "Farag does not disclose a database with identified tooth-specific structures, but only discloses storage of 3-D images" (page 7, Appeal Brief). In this regard, Appellant respectfully maintains that based on the discussion below, while the 3-D images of *Farag* are associated with a patient (see Fig. 3 of

Farag), these images however are not the same as or equivalent to a database including identified tooth-specific structures which would include information as to a specific region of a tooth from several different teeth of the same type.

As discussed in detail in the Appeal Brief filed on October 2, 2007 and briefly discussed herein, as recited in independent claim 1, and illustrated in Figs. 1-7 (reproduced below and on the next page) Appellant's invention relates generally to a data base for the storage of data.

Fig. 1

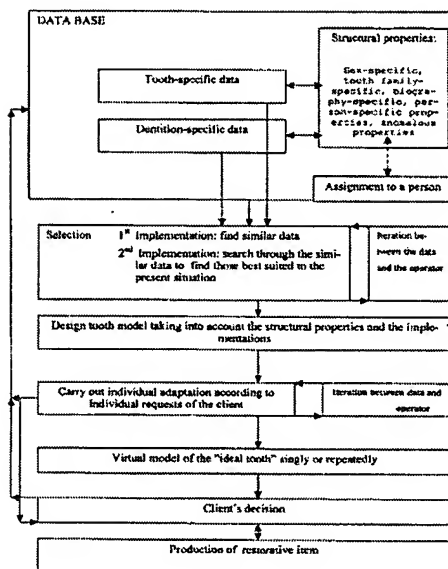
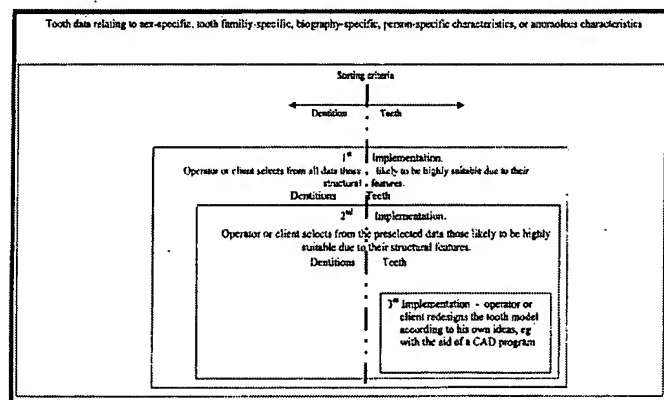


Fig. 2



Figs. 1 and 2 of App. Serial No. 10/804,089

Fig. 3

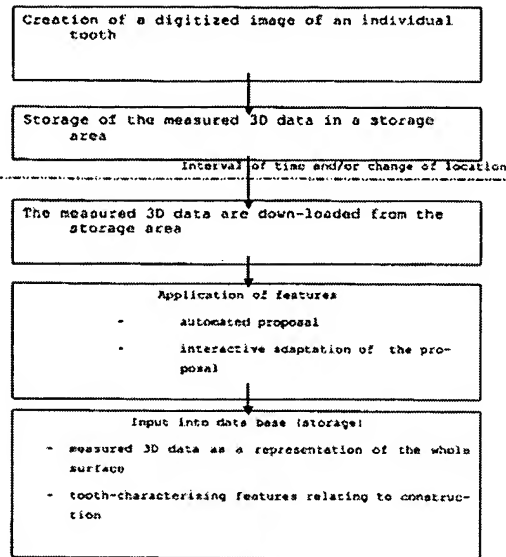


Fig. 4

In cases of defect:

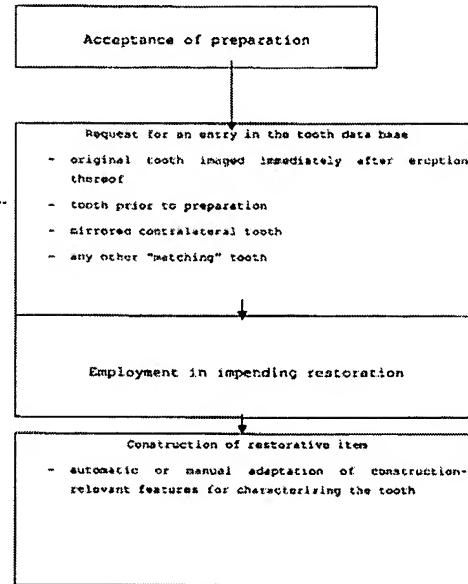


Fig. 5

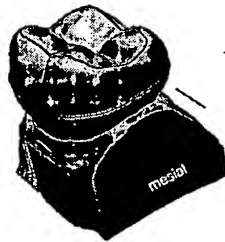


Fig. 6

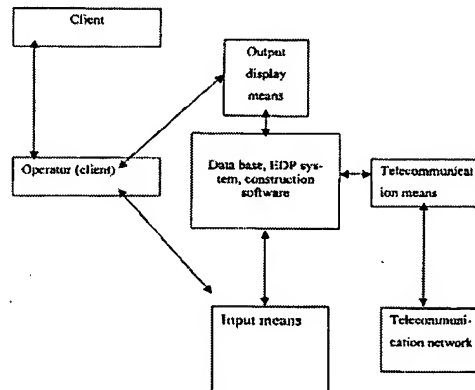


Fig. 7

Figs. 3-7 of App. Serial No. 10/804,089

With regard to independent claim 1, as shown in Figs. 1-7 (reproduced on the previous page and above) and discussed on page 3, line 28 to page 9, line 28, and further on page 16, line 7 to page 20, line 28 of the originally filed specification, the present invention provides a data base for the storage of data, (page 4, lines 1-2 and page 16, lines 7-13). The data base includes dental data concerning universally applicable dentition-specific features and universally

applicable tooth-specific features, (page 4, lines 1-8). The dental data illustrate real teeth as images in digitized form, (page 4, lines 4-6). The digitized form also involves universally applicable dentition-specific features, tooth-specific features or structural properties, (page 4, lines 4-8). The digitized form also includes sex-specific, tooth family-specific, biography-specific, and/or person-specific characteristics, with or without anomalous characteristics, (page 4, lines 4-11).

*Farag*, as illustrated in Fig. 3 (reproduced below) and discussed in Paragraphs 34 and 38 thereof, discloses a method 300 for dental imaging. In a particular embodiment, as noted in the Official Action and discussed in Paragraph 38 of *Farag*, method 300 includes storing 340 the 3-D image in association with patient information.

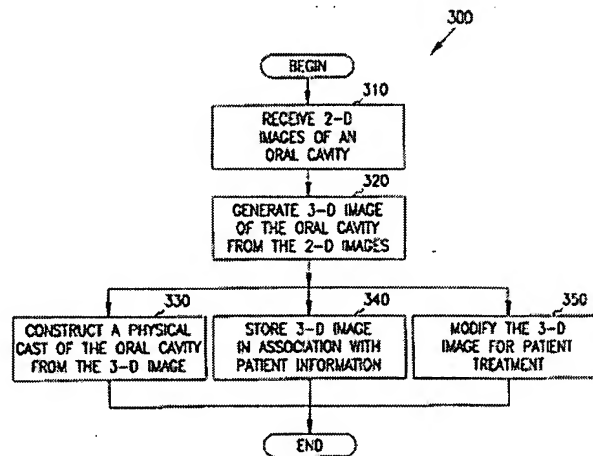


FIG. 3

Fig. 3 of U.S. Publication No. 2002/0028418 to *Farag*

As noted in Paragraph 6 (Response to Arguments) of the Final Office Action dated January 11, 2007, the Official Action indicates that Paragraph 38 (as discussed above) and Fig. 2 of *Farag* (reproduced on the next page) discloses the storage of data and the illustration of digitized images 275/285 of real teeth. The Final Office Action further indicates that “such 3-D digital images of a patient’s dentition – such as the one shown in Figure 8 (123) [reproduced on the next page] – clearly involve dentition-specific features, tooth-specific features and structural properties.” The Final Office Action thus concludes that “these dental data images anticipate Appellant’s claims that the digitized form of the data shows the features outlined above.”

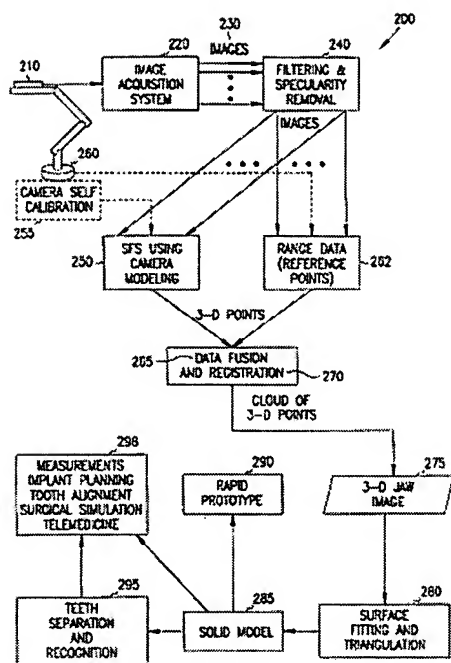


FIG. 2

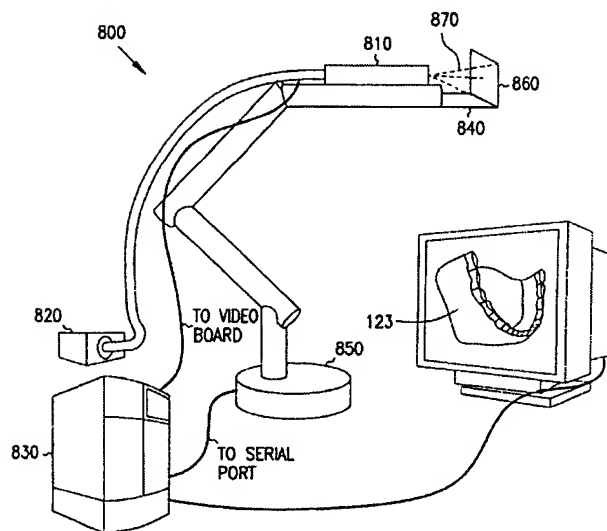


FIG. 8

Figs. 2 and 8 of U.S. Publication No. 2002/0028418 to Farag

Appellant respectfully agrees with the statement in Paragraph 6 of the Final Office Action that *Farag* discloses the storage of data and the illustration of digitized images 275/285 of teeth. However, Appellant respectfully asserts that for *Farag*, the storage of a 3-D image (275/285) in association with patient information is merely of an administrative nature and leads to an electronic file.

For the present invention, the specific features of the teeth are stored supplementary to the image. This information is in addition to the pure shape of the tooth. In this regard, Appellant respectfully disagrees with the holding in Paragraph 6 of the Final Office Action. While the *Farag* 3-D image (275/285) does show specific features, such features are not identified separately in the image and cannot be used as characteristics for any search in the database.

For the present invention, the dental data information of the real teeth as images in digitized form goes beyond any administrative information (as in *Farag*), in that the information

is defined in such a way that it is possible to use this data for construction of a “new” tooth, as discussed herein.

Thus contrary to the express recitation in independent claim 1 of the present invention, *Farag* does not disclose a database with identified tooth-specific structures, but only discloses storage of 3-D images (see Paragraph 38 of *Farag*). As discussed above, while these 3-D images are associated with a patient (see Fig. 3 of *Farag*), these images however are not the same as or equivalent to a database including identified tooth-specific structures which would include information as to a specific region of a tooth from several different teeth of the same type.

For example, as discussed in the original specification on page 16, lines 7-16, “FIG. 1 shows a possible overall access sequence when accessing a tooth data bank. The data base itself contains, in particular, digitized images, such as binary coded images, of real teeth together with tooth-specific and/or dentition-specific data of the kind inevitably and inseparably associated, as structural features, with each individual tooth and/or dentition. These include, in particular, sex-specific and/or tooth family-specific and/or biography-specific and/or person-specific characteristics with or without anomalies.” As further discussed in the specification on page 10, lines 5-9, “it is particularly advantageous when the user of the data base (tooth-specific and/or design-specific) has the data available on his own data processing facilities so as to minimize reaction times and, consequently, the processing time.”

Thus whereas *Farag* discloses a general database with the data of a person’s tooth, *Farag* however does not teach or suggest the aforementioned advantages of using a data base with tooth-specific dental data, and clearly does not disclose a data base including, “dental data concerning universally applicable dentition-specific features and universally applicable tooth-specific features,” as recited in claim 1 (emphasis added).

With regard to the teachings of *Paiz*, which has been cited for teaching the providing of data to a user through a computer network system in exchange for payment as recited in dependent claims 15 and 16, Appellant respectfully asserts that *Paiz* fails to overcome the aforementioned deficiencies in the teachings of *Farag*.

As pointed out in MPEP § 2131, “[t]o anticipate a claim, the reference must teach every element of the claim.” “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”



*Verdegaal Bros. v. Union Oil Co. Of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Moreover, as pointed out in M.P.E.P. § 2143.03, “[t]o establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art”. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). Since these criteria have not been met, Appellant respectfully asserts that the rejections under 35 U.S.C. § 102 (b) and § 103 (a) should be withdrawn because *Farag* and *Paiz* do not teach or suggest each feature of independent claim 1.

In view of the above arguments, Appellant respectfully requests the rejection of independent claim 1 under 35 U.S.C. § 102 be withdrawn. Additionally, claims 2-18 and 26, which depend from independent claim 1, are allowable at least because their base claim is allowable, as well as for the additional features recited therein.

## 2. Conclusion

In view of the foregoing, Appellant respectfully requests the reversal of the Examiner’s rejections and allowance of the pending claims.

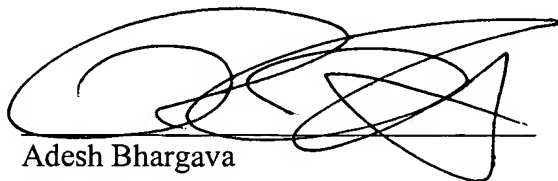
If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 04-2223. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

**DYKEMA GOSSETT PLLC**

Dated: February 26, 2008

By:



Adesh Bhargava  
Reg. No. 46,553

DYKEMA GOSSETT PLLC  
1300 I Street, N.W., Suite 300 West  
Washington, D.C. 20005  
(202) 906-8696

**CLAIMS APPENDIX**

1. (Previously Presented) A data base for the storage of data, said data base comprising dental data concerning universally applicable dentition-specific features and universally applicable tooth-specific features, wherein the dental data illustrate real teeth as images in digitized form and said digitized form also involves one of universally applicable dentition-specific features, tooth-specific features and structural properties, including at least one of sex-specific, tooth family-specific, biography-specific, and person-specific characteristics, with or without anomalous characteristics.
2. (Previously Presented) A data base according to claim 1, wherein the dental data are associated with an actual person.
3. (Previously Presented) A data base according to claim 1, wherein the dentition-specific features comprising data representing number, position, character, and anomalies of teeth of various types and their cooperation with each other.
4. (Previously Presented) A data base according to claim 1, further comprising a particular dentition-specific structure ascertained from any number of individual dentition-specific features of individual dentitions.
5. (Previously Presented) A data base according to claim 1, further comprising an individualized particular dentition-specific structure ascertained from any number of individual dentition-specific features of individual dentitions.
6. (Previously Presented) A data base according to claim 1, wherein the tooth-specific features include data which represent the position, shape, character, and anomalies of an individual tooth at any position in the dentition.

7. (Previously Presented) A data base according to claim 1, further comprising a particular tooth-specific structure ascertained from any number of individual tooth-specific features of individual teeth situated at a same position in the dentition.
8. (Previously Presented) A data base according to claim 1, further comprising an individualized particular tooth-specific structure ascertained from any number of individual tooth-specific features of individual teeth situated at the same position in the dentition.
9. (Previously Presented) A data base according to claim 1, further comprising additionally stored data relating to dental design features based on at least one of the dentition-specific and tooth-specific features.
10. (Previously Presented) A data base according to claim 1, wherein said data base being located directly on a usage site, or when said data base is not located on the usage site, said data base being situated at any place in the world and accessed by telecommunication means.
11. (Previously Presented) A data base according to claim 1, wherein said data base being equipped with at least one of one or more input units and one or more output units.
12. (Previously Presented) A data base according to claim 11, wherein the input unit comprising a keyboard, display means and a monitor.
13. (Previously Presented) A data base according to claim 12, wherein said data base being accessible by at least one of a client and a user with the aid of the input unit and display means for fetching data from said input unit as shown on the display means.
14. (Previously Presented) A data base according to claim 13, wherein an interaction between the input unit, display means, and data base is supported by at least one computer program.

15. (Previously Presented) A data base according to claim 14, wherein an exchange of data between an operating or display terminal is only possible with the aid of a payment system.

16. (Previously Presented) A data base according to claim 15, wherein the computer program synthesizes a single new data set from selected data sets.

17. (Previously Presented) A data base according to claim 1, wherein the data of the data base serve to construct a tooth model.

18. (Previously Presented) A data base according to claim 17, wherein said tooth model includes at least one of an outer surface, an inner surface and an internal structure specified by means of the data and displayed on an output device, wherein the data used for this purpose are taken from the data base and the data are suitably adapted.

19-25 (Canceled)

26. (Previously Presented) A data base according to claim 17, wherein said data base is used in a method of conceiving the tooth model whose at least one of external shape and internal structure is at least one of designed and constructed by means of the data, said method comprising at least one of a user and a client, with the aid of an electronic data processing system,

- accessing said data base,
- combining data on display means to form an image of a tooth model,
- and, with the aid of said image of a tooth model, producing the tooth model, whose shape can be processed with aid of input and output devices of the electronic data processing system.

27-30 (Canceled)

**Evidence Appendix (37 CFR 41.37(c)(1)(ix))**

None

**Related Appeals and Interferences Appendix (37 CFR 41.37(c)(1)(x))**

None